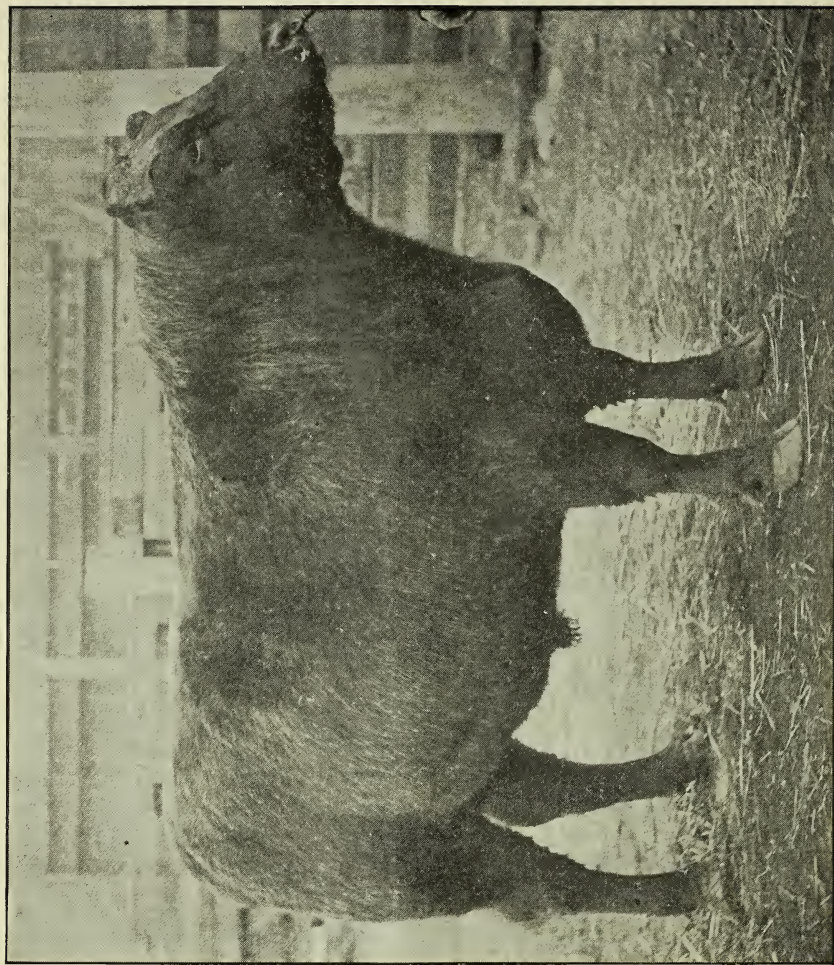


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"Shamrock," the grade Angus steer that won first prize at the Chicago Exposition—owned by the Iowa Agricultural College.

THE AGRICULTURAL STUDENT.

VOL. IX.

OHIO STATE UNIVERSITY, COLUMBUS, JANUARY, 1903.

No. 4.

TERMS OF SUBSCRIPTION:

One Year.....	\$0.50
One-half Year.....	.30
Single Copies.....	.05

While this magazine is published with the approval of the President of the University and the Officers of the College of Agriculture and Domestic Science, the editors are responsible for the statements in all unsigned articles.

Address all communications to the Business Manager, Agricultural Student, Columbus, Ohio.

Entered at the Post-Office, Columbus, Ohio, as second-class matter.

PUBLISHED MONTHLY BY

THE AGRICULTURAL STUDENT PUBLISHING COMPANY.

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EDITORIAL CHAT.

We present to our readers this issue, the magazine in a new cover—something which it is hoped will be considered appropriate and in keeping with the times. The substitution we believe is an improvement, since the former cover has been used for so many volumes and a new design, if for nothing more than a change, seemed desirable. We trust that the change will be acceptable to our readers and that it will add not a little to the value of the publication.

The outbreak of the "foot and mouth disease" among the cattle of New England which is causing so much comment throughout the country, is fully as serious as first reported. The radical steps taken by Secretary Wilson toward stamping out the disease and the appropriation of half a million dollars by Congress for this purpose, indicates the danger that is threatened the cattle interests of the country, and the action is in every way commendable. It is most earnestly hoped that the efforts of the government in this matter will be rewarded with success, yet the great dif-

faculties against which it must fight, as shown by the fruitless efforts which Germany has put forth in its eradication, makes the outcome somewhat questionable. Western cattlemen are awaiting developments with a great deal of anxiety.

The recent International Live Stock Exposition was one of the greatest educational events of the year in the agricultural world, and the wonderful success of the meeting augurs well for the future. The peculiar opportunities offered those interested in Animal Husbandry at such an exposition can scarcely be overvalued, since it brings the very best of the world into open competition and allows a just comparison of a large number of individuals of every type. The good that must inevitably accrue to the cattle industries of the country is indeed great, and it is a significant fact that we are rapidly surpassing our foreign neighbors in the matter of beef production, with Chicago the center of the beef producing industry of the world.

The interest that our Agricultural Colleges are showing in these exhibitions is evidenced by the large number of students who annually attend, and there seems a growing tendency to make this a general gathering of Agricultural Students from all the Colleges in the country. The judging contests and the student meetings that occur in connection with the exposition are most commendable features, and it is hoped that the advantages offered for the various student enterprises that are made possible, will be more fully appreciated from year to year.

The winning of first prize by the steer "Shamrock" is an added victory for the Iowa Agricultural College, and they are to be congratulated on their success. It indicates that the work being done in Animal Industry at our Colleges is on

a par with that of experienced breeders, and should go a long way in convincing the skeptical of the value of our College training along these lines.

Some recent comments in the Breeders' Gazette on the methods of teaching in our Agricultural Colleges are full of interest. An article appears which is really a severe criticism of our College methods, the writer having taken the view that our institutions were failing in the work assigned them, that the courses were being made too general, and that too little attention was being given to the more practical methods of instruction. The editor's comment on this, indicated his breadth of view in the matter and was really a defense of our present system. It was a plea for thorough courses and for work in keeping with the present conditions of agriculture.

It is doubtless true that some of our Colleges have erred in the direction of impracticable courses without a just compensation in the general part of the work, but we do not believe that many are subject to such criticism. An Agricultural College should stand for what is best in agriculture, and its courses must conform to the needs of the times. Evidently there are two distinct lines of work in agricultural education; first, that having to do with the student of thorough preparation whose training allows him a complete mastery of present-day agricultural problems, second, that which deals with the more practical side of agriculture and which has to do with students of incomplete preparation, and with the farmer himself. The second line of work is just as much the duty of the Agricultural College as the first, and if this is not developed to the degree that it should be, the College may be deserving of criti-

cism; but it cannot be said that this is the whole duty of such an institution.

It is the purpose of our own College to formulate courses that shall fit both classes of students; and while with limited means both cannot reach a maximum development, yet with the rapid advancement which has characterized the College in the last decade it is hoped that a high ultimate efficiency in both lines of work will be attained. This will not only mean that we must meet the requirements of the students who present themselves, but some system must be inaugurated for reaching the farmer and his family directly. We should not be content until this goal is reached.

Program for Students' Reunion and Meeting of the Agricultural Students' Union.

Final arrangements for the program at the Agricultural Students' Reunion and meeting of the Students' Union, to be held at Townshend Hall January 14, have been completed, and it is hoped that all who can possibly attend will be present. The program is divided into three parts, the first of which is set for 4 P. M., and which will consist of the following addresses: Address of Welcome, Dr. W. O. Thompson; "Agricultural Experimentation and Agricultural Progress," A. D. Selby; "A Lesson in Co-operation," Prof. C. S. Plumb. The second part of the program comes under the head of "Luncheon and General Reunion," and will take place between 6 and 8 o'clock. The third part includes the regular meeting of the Students' Union, and will consist of reports of directors, with an address by Prof. Thos. F. Hunt on "A Division of Thremmatology." Much important business is to come before the Union at this time and the advisability of some new lines of work will be discussed. The condition

of the Union was never so prosperous as it is this year, there having been a great development of interest and work during the past season. The meeting promises to be by far the best that has ever been held and the special reunion is an assured success. Eighty former students have already notified the committee that they will be present and at least that many more are expected, so that the gathering promises to be one of the most enjoyable and profitable ever held in connection with University affairs. No former student who is interested in agriculture should think of remaining away, if it is at all possible to be present.

The Chicago Exposition.

Perhaps no event in recent years has caused so much stir in live stock circles of America as the International held at Chicago the first week of last month. This was the third of the series of Chicago Fat Stock shows, and the greatest of all; greatest in number of entries, in quality of exhibits and in attendance and interest of visitors. Perhaps no greater show of its kind was ever held anywhere; certainly America has never seen its equal. Its greatness was almost bewildering. "Almost too big for description," Mr. James Biggar, of Scotland, who was judge of grade and cross bred bullocks, is quoted as saying.

In breeding cattle, almost 900 pure bred animals were present. The Short-horn and Hereford breeds led in point of numbers, with Angus, Galloway, Red Poll, Polled Durham, and Devon breeds following in order named.

In the fat cattle classes for individuals and herds, about 200 were shown. Of these the Iowa Agricultural College showed a number and won a number of prizes, including the grand championship, won by the grade Angus steer, Shamrock. An Angus herd, shown also

by the Iowa College, won in the class for herds of any breed.

In the car lot exhibit of cattle 120 cars, almost 2,000 animals, were shown. It was the greatest aggregation of high grade beeves ever brought together. Here, again, were the Angus the winners of the grand championship, with a load fed by Mr. Chas. Escher, of Iowa, with a lot of Shorthorns fed by Col. Casey, of Mo., a close second. The car load exhibits of sheep and swine were not nearly so numerous as were those of cattle.

The show of draft horses was one of the most popular features of the exposition, if the interest manifested by the crowd is to be taken as an indicator. The amphitheatre, where a great deal of the showing was done, was almost continually crowded by a vast throng of interested spectators.

In numbers the Percherons led, two-fifths of the 400 horses on exhibition being of that breed. McLaughlin Bros., of Columbus, carried off a large share of the first prizes and championships on stallions. In numbers on exhibition the Clydes, Shires, Belgians and Suffolks followed.

The show of draft horses in harness was viewed by more people than any other feature of the exhibition. Elaborate preparations had been made by the management, for the horse show seats had been erected sufficient to hold a vast multitude of people, and the whole covered with canvas; but the heavy winds preceding the opening of the exposition had blown down the canvas, so that what part of the showing could not be done in the Amphitheater, was sent to the outside. Here the drafters in harness paraded, and notwithstanding the cold weather, the review was witnessed by thousands of enthusiastic spectators.

The sheep exhibit was fully up to the International standard. Taken as a

whole, it was said to be one of the very best ever seen in the American show ring. More than 1,000 magnificent animals were in the pens, representing Shropshires, Southdowns, Oxfords, Hampshires, Dorsets, Cheviots, Cotswolds, Lincolns, Leicesters, and Rambouillets, in the order named.

The swine show was probably the weakest feature of the exposition. This was due to the disastrous results following last year's show, when many herds were infected with cholera germs, and went home victorious only to become victims of the disease. Notwithstanding all this the hog exhibit was not to be sneered at. There were about 350 entries in the breeding, and 100 in the fat classes, outside the car lot exhibits.

One of the marked features of the notable affair was the showing made by the agricultural colleges. Of these, Iowa, Missouri, Minnesota, Wisconsin, and Nebraska Colleges had exhibits. Iowa was the most successful of the College exhibitors, both in the open show ring and in the College exhibit classes.

The fact that these College exhibitors were successful competitors of the most skillful breeders and feeders in the land, is another telling argument in support of the claims made that our modern schools of agriculture are practical institutions, and not purely theoretical, as their opponents are vainly attempting to have the public believe.

Considerable protest has been made against open competition by the Colleges, against private breeders and feeders. It is uncertain as yet what will be done in the matter, but it is to be hoped that the present rules in this respect will not be changed. This is desirable, not so much on the part of the colleges, as that the entire stock raising population of the country. The object of agricultural shows is, not that some one may win prizes, but that agricultural knowledge

may be advanced. Can this be done best by barring an exhibitor because he is able by his superior methods to produce prize winners? Should not his exhibits rather be sought, especially when he publishes freely all his methods of producing this prize winning stock? If so, why should Colleges be barred from competing for prizes? Their methods are no secret, and their aim is not so much to win honors in the show ring as to advance the science of agriculture along practical lines.

The judging contest among College students and farmers' sons, results in another victory for the Colleges. About an equal number of College men, and farmers' sons not college students were engaged in the contest. The superiority of College work was again vindicated in this very practical way. Only one contestant not a College student succeeding in getting within reach of the money. He stood eleventh in the list. Iowa College again succeeded in landing the Spoor trophy. The Colleges represented were Iowa, Wisconsin, Minnesota, Michigan and Ontario.

From first to last the show was a vindication of the claims of Colleges of Agriculture. Delegations of students from a number of Colleges, especially those of the Northwest, were present at the show. Among these was a class of 25 from Ohio State University, under the guidance of Prof. Plumb, which spent several days of very profitable study and investigation in this magnificent laboratory of Animal Industry. Not only were the different high class animals compared as to individual merit, but a comparative study of breed types was made in order to fix a correct idea of the different breeds firmly in the mind. No better place for such work could have been found elsewhere. The time spent in this way was thought by all

in the party to be of great intellectual profit.

The University was represented at the meeting of the Association of Agricultural students by Mr. C. J. Halverstadt, who read a paper on "The History of Live Stock in Ohio."

At the meeting of the American Association of Animal Husbandry Workers, Prof. Plumb represented the University, and was elected vice president of the association.

Efforts are being made at the present time to place the International on a permanent basis. This is a most desirable thing to do and the prospects are good for its achievement. A. S. N.

Oleo Status.

The new "oleo law," which went into effect on July 1st of this year, has only partially accomplished the results which were expected of it by its supporters. Like nearly all laws which are strenuously opposed, there is a loophole provided, in an amendment, through which the manufacturers of oleo may push their colored product.

In this case the amendment states that if any material which is added to the oleo be in quantities sufficiently large to be called a constituent, such material shall not be considered a color or adulteration, even if it contains sufficient coloring matter to color the product.

The manufacturers have seized this opportunity and are in this manner coloring the oleo with vegetable oils, like olive oil and cotton seed oil. The color of these oils in a pure state is not enough to account for the color which is given the colored product, so that it is evident that they are being colored by some unknown means, which has, as yet, baffled all of the efforts of the chemist.

The decision of the Commissioner of Internal Revenue, that oleo colored with

a natural oil would not be considered as artificially colored, provided the article was used in sufficient quantities to make it a legitimate ingredient, has strengthened the position of manufacturers. Also, the scarcity of pure butter and the consequent high price, has impelled the manufacturer to put forth greater efforts to put out a salable article, and to use a greater number of devices to get his product on the market. The result of this has been that the output of oleo which is taxable $\frac{1}{4}$ c per pound is much greater than was anticipated. The output in the Chicago district, as shown by the reports of the internal revenue officers, was nearly as high for October as for the corresponding month last year. But the report for November shows a great falling off, indicating that the manufacturers had induced the retailers to take an over-supply during October, which could not be gotten rid of, thus making less of a demand in November. This gives a better outlook for the farmer, for it indicates that the oil colored product of the factory is not satisfying the people as did the product before the law went into effect. The reason for this is that pure cotton seed oil is not colored, and it was formerly used in small quantities; also the neutral lard and oleo oil formerly used were the purest that could be obtained. Now they are using larger amounts of the cotton seed oil and the other oils of poorer quality in order to get the color, with the result that the flavor of the product is greatly injured.

In short, the manufacturer is sacrificing quality to obtain color and it is telling on his trade. There are still a few manufacturers who are producing a pure white article which is holding its own and commanding as good a price as the colored, showing that the people are still after quality.

The large amount of oleo being disposed of may largely be accounted for by the high price of butter, due to its scarcity; for butter is 2c higher than it was this time last year.

The failure of this law to accomplish as much as was expected, is due largely to conditions which were unknown at the time the law was framed, i. e., the coloring of oleo by means of colored oils.

If it is right that the manufacturer of "artificial butter" should not be allowed to color his product in imitation of the pure article, it is before the farmers and dairymen of the country, that at the next session of Congress an amendment be presented which shall prohibit the use of coloring matter in any form. If the farmer is to be protected, he must look after his own interests and see that a bill is formulated that will cover the case.

M. O. B.

American Federation of Students of Agriculture.

The second meeting of the American Federation of Students of Agriculture, which was organized during the week of the International Stock Show of 1901, was held in the Assembly Hall of the Live Stock Record Building, December 2, 1902. Owing to a misunderstanding as to the time of meeting, and a consequent lack of representatives, the business meeting which was to have been held in the afternoon, was postponed until evening.

At 7:30 P. M. the meeting was called to order by Pres. S. J. Haight, of Illinois. After a programme of very interesting speeches contributed by representatives from each College in the Federation, except Guelph, Canada, the business of the day was taken up. The lot to furnish officers for the ensuing year fell to Wisconsin. Owing to a de-

iciency in the treasury each year the assessment of each college was raised from one to two dollars per year.

A word of explanation as to this Federation might not be out of place here. Its purpose, as set forth in the constitution, is to promote the interests of Agriculture and Agricultural Colleges by bringing them in closer contact with each other. At the present time there are nine State Agricultural Schools belonging to the organization. These are Ohio, Illinois, Indiana, Missouri, North Dakota, Wisconsin, Iowa, Minnesota and Guelph, Canada. Each year the college which is to furnish the officers for the next year, is determined by lot, those once having filled the place being barred until each in turn shall have officiated.

To judge from the interest that was manifested this year it is an organization that will be popular among students and do much to further the ends for which it was designed.

C. J. H.

Ideals In Agricultural Education.

The rapid advancement that is being made in agriculture and the change in in thought and methods regarding agricultural education is very encouraging. The views now held by our most able men count for much in this matter, and a recent interview with President Schurman, of Cornell University, published in the Rural New Yorker, is of great interest.

President Schurman was raised on a farm, and naturally we would expect to find in him an eagerness to advance agricultural pursuits. This, of course, must be done largely through the young farmers, in whom he has the greatest confidence. He said that the hope of the United States is in the farming population, and that the only hope of the cities lies in the fact that the young

people from the farm are constantly moving into the cities.

He denied the accusation that money which, by charter, should be employed for instruction in agriculture and the mechanic arts, was being used for other purposes, and said that the University has always endeavored to keep the College of Agriculture abreast with the other departments; but, if agricultural education is to be improved, it must be done by State appropriations, for we seldom hear of anyone in America giving gifts for the promotion of agriculture. At present the only money furnished by the State—\$35,000 per annum—is used for agricultural lectures, schools, and experiments, carried on throughout the State, and the correspondence class leaflets and bulletins, over which the University has charge.

He considers the four year course, as now constituted, the most practical course for the present, but in the future it should be more specialized and embrace the subjects more directly connected with the business of the farmer, and it should provide additional instruction in further subdivisions of agricultural science. He does not expect that all this can be accomplished at the University alone, but he would have an agricultural school established in at least each judicial district of the State, on a rank with the present high schools. He would also institute agricultural instruction in normal school courses and require future country school teachers to prepare themselves for giving instructions in the elementary principles of agriculture. Thus, he would have the elementary principles taught in the country school, make it a specialty in the judicial district agricultural school and have it culminate in the advanced course in the University.

The Agricultural Department of Cornell will soon be reorganized—at the re-

tiement of Professor Roberts—and if this is done according to his ideas, he will no longer have cause to say as he did: “Indeed not only Wisconsin but Illinois, Ohio, Iowa and several other States are far ahead of New York State in the matter of agricultural education.”

The ideas of President Schurman on this subject are not entirely original, for we find working examples of them in Wisconsin and Minnesota. Especially can this be said of High School Agriculture as being taught in the recently established County Agricultural High Schools of Wisconsin, and the Schools of Agriculture of the University of Minnesota, located near St. Paul. The latter is located near the State College of Agriculture, and yet is apart from it. It is essentially a secondary school and is frequently referred to as the Agricultural High School. From an agricultural standpoint, the course is pre-eminently practical and is intended to magnify the occupations of the agriculturalist and develop the attractiveness of home life. Looking toward the latter purpose, music is required throughout the full course of three years. Graduates from the School of Agriculture, before entering the College of Agriculture, must take an intermediate one-year course, consisting of general academic branches, such as Mathematics, History, Literature, etc. Graduates of the high schools of the State cannot enter the college without first taking at least one year's work in the School of Agriculture, and before graduation, must have completed all of the course prescribed for the School of Agriculture.

As yet, the establishment of secondary agricultural schools in our own State has not attracted much attention; but, if Ohio wishes to maintain her present standing among other States, in the

matter of agricultural education, it will doubtless be necessary to adopt some method similar to the one which President Schurman has proposed as the policy to be pursued in the future by the State of New York.

C. A. McC.

Ohio Academy of Science.

The Twelfth Annual Meeting of the Ohio Academy of Science was held at the Ohio State University during Thanksgiving vacation, November 28 and 29. The meeting was well attended and the interest among those present was unusually manifest.

The program consisted of over forty papers and was shared by nearly all phases of research in the natural sciences. The papers presented were necessarily short, but for that reason were so much the more to the point.

As closely linked as real and intelligent agriculture is to the natural sciences, requiring as it does some knowledge of all of them, it is difficult to decide what part of the program was most interesting to the agricultural student, or if, indeed, he was not interested in the whole of it.

A fifteen minute report on the development of the bones in the legs of some of our domestic animals by Prof. Mercer, illustrated by numerous photographs showed some very interesting phases as indicated by the cartilaginous skeleton of the foetus.

The Tabanidae or gadflies of Ohio were made the subject of a five minute paper by Prof. Hine. To say that the gadflies are of more than passing interest to the farmer is certainly not overstating the case, and all attempts to learn more about them are to be commended.

A short paper on the Ohio Batrachians and Reptiles by Mr. Morse, brought out some interesting facts about

Ohio reptiles and the distribution of certain species in the State.

The occurrence of the Cigarette Beetle in furniture in Columbus was made the subject of a few notes by Prof. Osborne.

The President's Address, by Prof. Lazenby, on the dietetic value of fruit contained a goodly number of points which the general public, perhaps, especially the farming public, would find very good to follow out. The dietetic value of fruit, as Prof. Lazenby stated, is not small, and it is a lamentable fact that too many people do not provide fruit according to the real needs of their body.

Notes on the life history problems of some of the rusts living on more than one plant during the round of their life cycle were presented by Dr. Kellerman, and some of the methods used in working with these fungi have a bearing upon economic agricultural problems. Along somewhat the same line were notes on smut experiments under field conditions by O. E. Jennings.

The relations of living beings to their surroundings are being more and more recognized as being of the utmost importance by workers in biology, and several numbers of the program were along that line. The general climatic conditions of Ohio were summarized and charted in a ten minute paper, and Dr. Kellerman made a preliminary report on West Mansfield Swamp. Prof. Bonser made a final report on the Big Spring Prairie and discussed some problems of Montana forestry, while Prof. Schaffner made a preliminary report on the plant ecology of Brush Lake and a report of progress in the plant ecology of Ohio.

Prof. Mills, in reporting new discoveries at the Baum prehistoric village site, made mention of certain agricultural practices of this prehistoric race.

O. E. J.

The Dairy School.

Local Meetings of the Ohio Dairy-men's Association.

As announced in the last issue of the Agricultural Student, the Ohio Dairy-men's Association is holding local meetings in different parts of the State.

Four such meetings have been held. The first one was held at Windham, Portage county. A large audience greeted the speakers at the opening of the first session. Great interest was shown in the discussions about the composition of milk, the feeding value of skim milk and the variation in the fat content being brought out. The Babcock test as a means of determining how much a patron shall receive for his milk at the factory is a new thing in that locality, hence the great interest.

President Bailey, who has been a breeder of dairy cattle for over twenty years and knows what he is talking about on that subject, led the audience out of doors where two cows were waiting, and the people listened attentively while he pointed out the dairy type.

Supper was served in a neighboring church and a brass band lent interest to the occasion. In the evening a still larger audience packed the house to see the stereoptican pictures, and a resolution endorsing the work of the association and commending Assemblyman Crafts for his good work in securing the appropriation of \$2,000 from the State for such work, was put through with a unanimous vote.

The second meeting was held at Waynesville, where good sized audiences turned out and showed their interest by asking questions, so that the subjects had to be cut short before they were ful-

ly threshed out. It was a demonstration of the fact that dairying can be talked morning, afternoon and night without exhausting the subject.

At Mt. Carmel the rain came down in sheets and cut short the attendance, but did not dampen the ardor of those who got to the hall. The preparations for this meeting were made by Albert E. Day, O. S. U. '02. A member of the Dairymen's Association, Mr. Pinkvass, showed his interest by coming twenty-five miles through the mud.

At New Vienna the weather was more favorable, but the attendance was not as large as had been hoped for. The Dairymen's Association expects, however, to do missionary work, and is not discouraged if the houses are not always crowded.

The local creamery officers showed great interest and the buttermakers from Wilmington and Sardinia were there to say that they approved of the work of the association.

The Agricultural Institute at Goettingen.

BY A. E. VINSON.

Several decades ago The University of Göttingen was one of the foremost in Europe, but due to various misfortunes, it has been forced to take a more insignificant position. This, however, is untrue of some of its separate faculties, for it still lays claim to first honors in Mathematics and Agriculture, while its fame in General and Physical Chemistry is world-wide. Most foreign students are specializing under one of these three heads; the Americans and Italians in Mathematics and Chemistry, the Russians more especially in Agriculture.

Agriculture is classified in the Philosophical Faculty and the graduates receive the degree Ph. D. The require-

ments are necessarily the same as in other subjects. Beginning with this year a rule goes into effect throughout the German Universities requiring candidates for the doctor's degree to be graduates from a gymnasium or its equivalent. This caused the Americans much anxiety for a few weeks, as it was taken to mean a previous training of nine years in Latin and six in Greek. So much opposition has been raised, however, that we believe the ruling will be more liberally construed.

The nature and scope of the work undertaken in the institute is always in the highest degree scientific. This will be best understood by referring to the five professors who lead it. Geheimrath Tollens directs the Agricultural Chemical Laboratory and naturally much of his work is on the sugars. At present two Americans are engaged here; Mr. Barlow, of Iowa, who is investigating certain phases in the analysis of plant ashes, and Mr. Elliott, of Virginia, who is "building down" from a pentose to a new tetrose for which he will make an extended search in the vegetable kingdom. Geheimrath Fleischmann conducts all work relating to dairying. It is very largely bacteriological and chemical.

Prof. Alfred Koch is at the head of the Bacteriological Institute (a division of the Agr.) and devotes himself more to general industrial and scientific questions.

Prof. Dr. Lehmann leads the work in Animal Physiology. This semester he delivers lectures on stock feeding. One of his students is investigating the value of amines in feeding stuffs.

Finally, Prof. von Seelhorst has charge of the field work and gives instructions in General Agriculture. These men are assisted by a competent corps of younger assistants.

Instruction, excepting in laboratory work, is given by lectures. The student need fear no quizzes or examinations, nor does anyone ask if he has had this or that prerequisite. You take your choice there, pay your money, and not the reverse, as we often do in America. One is supposed to attend class a few days, to see if he will be justified, before he registers and pays for it. A charge of five marks (about \$1.25) is made for each semester hour of instruction; and you may take as little or as much as you please. "*Akademische Freiheit*" is the privilege of the University student and even extends to exemption from civil arrest. If you are disorderly, simply show the policeman your student card and go your way. He dare not arrest you, but you may hear from it later.

Geheimrath Tollens, who speaks English very well, always receives Americans cordially. In conversation with him he said: "Some ten or fifteen years ago we didn't care to hear what was being done in America, but now we are compelled to take notice of your work." He has, however, criticised the great mass of "useless analyses and investigations" our experiment station have piled up. Geheimrath Fleischmann also is one of those rare men who seem so full of their subject that they are never happier than when giving the surplus to others. Fortunately for us, two of his classes have only three members each, but we three have the individual attention of the *Geheimrath*, his private assistant and a servant for four full hours two afternoons each week. It is very unusual for a German professor, and especially *Geheimrath*, to give his laboratory students much time, but Prof. Fleischmann takes his microscope, sits down among us and makes the same preparations we do; we look at his, he looks at ours.

The servant is a feature that it seems to me would be desirable to introduce into the American laboratory. He takes care of the laboratory, makes solution, cleans your apparatus and, when your time is up, finishes many simple but tedious operations, as filtrations, evaporations, etc. We will find out how much this service costs when it comes time to pay the "*trinkgeld*."

College spirit, as we understand it in America, is wanting. Perhaps the *Commerz*, with its liberal supply of lager, or the *Zweikampf*, with its decorated faces, may be the equivalent. Duelling is prohibited, but the Mayor of Göttingen was once a student and bears the scar of defended honor. There are no yells. The Americans, however, could not endure this, and a former colony originated the following, which, of course, if yelled publicly, would not add to their favor:

Leberwurst, Mettwurst,
Ein Krug Bier;
Göttingen, Göttingen,
Mahlzeit hier.

Briarcliff School of Practical Agriculture.

A few years ago the science of practical agriculture was not considered of much importance; in fact, agriculture was not considered as a science at all. The popular idea was that when a man was not fitted for any special purpose, he could farm, and that just as well as an educated man. But within recent years, farming has been considered on an equal footing with the other professions and it is deemed just as necessary to train a man in agriculture as to train him in engineering.

With this thought in mind institutions, both private and public, have been founded, in which to teach the sciences of practical agriculture. Of these the



Students Husking Corn. The degree to which practical work is carried, is here shown.

courses vary considerably in regard to the amount of practical work required of students. An example of one where practical work is the paramount consideration, and one which it is the purpose of this article to discuss, is the "School of Practical Agriculture and Horticulture," at Briarcliff Manor, N. Y.

The school was formerly situated in one of the most picturesque sections of Westchester county, within three miles of the Hudson River, on the Briarcliff farms, which cover an area of 5,000 acres, and are models of excellence. However, within the two years of its existence the school has so far outgrown its facilities that a farm of 425 acres has been purchased near the city of Poughkeepsie, and the school is now moving to its new location.

The school was established in 1900 "to ascertain the public demand for an institution giving attention to young men and women, especially of our cities, in the practice of agriculture to enable

them to earn an independent livelihood, and at the same time to develop a taste for rural life by demonstrating that higher value may be obtained from land by intelligent management than under methods now generally practiced."

Instead of an institution of learning, the school resembles a large farm worked by a large family, each member doing his or her share of the daily tasks and receiving instruction and advice from the older members of the family. Of course they have class room work, but this is supplemented by the practical work, in which each student is required to take part and perform such requirements in a satisfactory manner.

The school is open on equal terms to both sexes, but the women perform only the lighter forms of labor, although they study the work quite as thoroughly as the men. The school endeavors to give the student the same experiences in its work that he would encounter in the outside world. The practical work done

includes farm surveying and plotting, computation of acres, road making and fencing, tilling soils, use and application of fertilizers, manipulation of implements, harvesting, storing and marketing farm, orchard, garden and greenhouse crops, improvement of varieties of cereals, fruits, vegetables and flowers, by hybridization and selection, care and management, judging, breeding and valuing farm animals, poultry and bees, handling milk and its products. Besides these, much time is given to the study of business methods as applied to commercial agriculture. This branch of study is recognized as one of prime importance, and one of the chief objects of the teaching is to impress the student with the need of accuracy and minute care in all his or her undertakings. It has become recognized that for success in agriculture, more than in any other commercial pursuit, great care must be given to details.

The objects of the school (as given in the catalogue) are "to train its students in all practical operations necessary to the best management of farm, orchard, garden and greenhouse crops; to supply adequate and systematic instruction in all subjects necessary to produce an intelligent agriculturist and horticulturist; to present reliable information upon the conservation of food products by natural means; to afford a comprehensive grasp of home and foreign market conditions; to carry out experimental methods of husbandry, and to demonstrate the value of the special market for the finer products of the farm.

"In short, this school aims to teach the highest type of business farming, general and special, by example as well as precept; it therefore demands of its students earnestness of purpose, application to duties, and that careful attention to details essential to success in this as in any other business."

The students are expected to keep themselves informed upon all current agricultural events, market prices of feed, fertilizers, crops, etc., in short, to make themselves conversant with everything pertaining to the business of agriculture. Being close to a large city, they have the opportunity of investigating the markets which at present are but imperfectly understood by the great mass of producers.

Such a school fills a need which no other institution has yet ventured to satisfy. It is a school where all youth interested in nature and rural pursuits may get what is wanted by going directly to the soil for knowledge. Such schools instill into students a greater love of nature and elevate agriculture as an occupation.

T. L. WHEELER.

HISTORY OF THE LIVE STOCK INDUSTRY OF OHIO.

Given by C. J. Halverstadt at the National Convention of The Agricultural Students' Federation, held in Chicago, Dec. 2, 1902.

During the first half of the nineteenth century the Northwest Territory, more especially Ohio, was the center of the live stock industry of this country. The reasons for this are obvious.

Almost immediately after Congress had established this territory by the Ordinance of 1787, three million acres of the richest lands in the State were sold to the Scioto Company, one million to John C. Semmys and one and one-half millions to the Ohio company, which formed Marietta, the first permanent settlement in Ohio, at the mouth of the Muskingum River. This land which today is worth from \$50 to \$90 per acre, cost these individuals from 9c to 16c per acre. John Seymmys bought his

share solely for speculation, and by every possible means induced immigration from the Eastern States. The development of this territory was nothing less than phenomenal. During the year 1718 there are said to have been ten thousand people passed through Marietta on their way westward. Then, owing to wars in Europe and the revival of trade in the eastern part of the States, there was a lull in the westward movement for two or three years.

About 1796 the government adopted a system of selling lands in Ohio on credit, and this, coupled with the return of peace in Europe and the consequent decline of business in the agricultural States, sent a wave of people into Ohio which enabled her to become a State in 1803. It was believed in the East as time wore on, prosperity would return and immigration would cease. The good times did not return. The condition of trade and commerce, of agriculture and manufacture grew worse instead of better, and the movement of prosperity was more pronounced than ever. Ohio, which in 1810 contained a population of 230,000, in 1816 had reached the 400,000 mark.

The rapid movement of these hundreds of thousands of people from the seaboard to the West gave a new impulse to internal improvement. The men of the coast who up to this moment had, as it were, been looking towards Europe, now on a sudden veered around and faced the West. Enterprises hitherto deemed fit only for private individuals, now assumed public dimensions. State after State heard the cry, and an era of internal improvement opened which did far more to cement the East and West irreparably than did the Constitution and Laws.

With this amazing immigration and development of the fertile valley the sup-

ply soon began to exceed the demand, and a new market had to be found. Many willing hands soon had the Mississippi opened and hundreds of flatboats floated down to the Crescent City loaded with goods from Ohio. George Renick, conceived the idea of driving fat cattle through to the Eastern market. To demonstrate the possibility of doing it, he in 1805, crossed the Alleghenies with sixty-eight head of fat steers and drove them through to Baltimore, where he sold them at a good round profit. This gave a new impetus to the already active live stock interest. In 1817 Felix Renick, of whom we shall speak later, drove one hundred head through to Philadelphia, receiving one hundred and thirty-four dollars per head. The following year his brother drove through to New York the first Western cattle ever seen in that city, which sold for sixty-nine dollars each.

There was still a more potent factor which contributed to the improvement of the live stock interests. Felix Renick, a man deserving high rank in American history as one of the most intelligent of all those who helped place the "infant industry" of stock raising squarely on its feet, was the main-spring of a movement to form a company for the purpose of promoting the interest of agriculture and improving the breeds of live stock, more especially cattle.

By his unmitigating efforts the "Ohio Importing Company" was formed with a membership of about fifty shareholders, but two of whom resided out of the State. Mr. Renick was appointed to go abroad and purchase cattle for the company. We have time only to glance at the magnanimous work which this company did. Two of the heifers included in the first importation in 1834 gave rise to families of Short-horns, which are at the present

day among the most numerous to be found in the Short-horn breeding States. These were the roan heifers Rose of Sharon and Young May. In the subsequent importations in 1835 and 1836 some of the most noted animals ever produced were brought to America, such as Josephine, Young Phyllis, Illustrious, Matchem (2281) and Count Halley (1855).

In 1836 this company sold at public auction forty-three animals at an average of eight hundred two dollars and twenty-five cents, and in 1837, fifteen animals at an average of one thousand seventy-one dollars and sixty-five cents. This was the end of this company's career, although many of the individual men continued for many years to raise cattle which were the foundation of the American Shorthorns of today.

In 1807 Seth Adams came to Muskingum county, Ohio with about thirty-five sheep, the progeny of a pair of high-priced Spanish Merinos, which were probably the first sheep within her borders. From those and subsequent importations sprung the hundreds of these animals which have been, and are still raised, annually in Ohio. From that time to this she has always been one of the foremost States in the Union in the production of wool and mutton.

The first swine came with the first people. The breeding of fancy hogs and the shipping of their products to New Orleans, as mentioned before, was probably the most important industry during the first ten years of settlement in Ohio. That it continued to grow is shown by the fact that in 1850 there were nearly three million hogs in the State.

These few instances, to say nothing of the immense proportion that the dairy products, on the Western Reserve, had assumed, and the rearing of fine horses in all parts of the State, are sufficient to account for the unparalleled develop-

ment of Ohio and the fact that she was the center of interest to the live stock men. These are the flocks and herds which form the solid base of a towering monument which breeders are today rearing to American energy and ingenuity.

These were the days of prosperity to the Ohio Farmer, and right well did he take advantage of them. The Eastern farmer, on his relatively poor and high-priced land, suffered severely by this competition. But the wave of prosperity was at its flood tide and soon the ebb began. The halt of the emigrant train had been but momentary and again it started forward with an irresistible force which has carried it to the uttermost parts of the domains.

Millions of acres of fertile prairies lay ready for the plow. Countless herds of stock could be pastured on the grasses without cost of land. By 1850 the mower, by 1860 the reaper, by 1880 the self-binder made possible the development of the West, the like of which had never been seen. Truly did the plain yield its increase in abundance. Millions of bushels of oats and corn, and thousands of tons of hay and straw were produced yearly, which before they had any practical value, had to be turned into annual products. These facts, together with the increased transportation facilities, created for the Ohio Farmer in turn the same fierce competition that he had been swaying on the Eastern producer. To the superior local markets he owes the thanks that the results were not more ruinous than they were. Many of them realizing the turn in affairs gradually adapted themselves to it and have continued to prosper. With others the tale has been different. A weather-beaten house surrounded by a few briar-covered acres are remaining marks of a blasted ambition.

Such is a bare outline of the live stock history of Ohio; but we cannot refrain from conjecturing as to its future.

In the last fifteen years not only has the population of the United States grown extraordinarily, but the per capita consumption of meat has increased fully 25 per cent., owing to the improved condition of the people, while the herds and flocks have been on the decline. The fact is alarming, as government statisticians report the number of cattle to be decreasing at the rate of about two million head a year. Figures for the last few years show that there has been a decrease of 14 per cent. in the number of cattle and an increase of at least 10 per cent. in population. Are you awake as to what this means? Do you wonder that the live stock man's blood boils? The comparatively slow increase in the number of stock from 1875 to 1892 and the rapid decrease in the last ten years are significant facts. Not only is the home consumption increased but the foreign demand as well. Are we in danger of a meat famine? I think not. Then what significance has this to the Ohio man?

Side by side the emigrants come to Ohio; shoulder to shoulder they reached the Mississippi, and cheek by jowl they scaled the rockies. Slowly but surely the vast West has become populated and the land has assumed a money value. The cheap valuable lands have gone forever.

Fifty years ago the West was agriculturally an undiscovered country. With in this time it has been transformed by the farmer. Heretofore it was the system of highway robbery farming which has now reached an end. No longer can the western man raise his stock so nearly free from cost. It is only a natural consequence resulting from the more dense settlement of that section.

In this new era of development which is so manifestly in progress it seems to me that the Ohio farmer with his superior markets, is not to be handicapped in the future as he has been in the past. The young man of today in the Ohio Valley States stands on a different vantage ground than that occupied by his father.

By an unchanging economic law the increased demand will be met by an increased product, which will tend to lower present prices, but no more is the eastern man to suffer so severely from the sharp competition of his western brother.

It seems to me that in the conditions of today we have a "token of the things which are to be."

Ohio State Horticultural Society.

The Ohio State Horticultural Society held its thirty-sixth annual meeting December 16, 17, 18, at Clyde, Ohio.

Clyde is the center of one of the most enterprising and successful fruit and vegetable producing sections of Ohio. There is a flourishing local society at this place and the local interest and attendance was good throughout the meeting, often times filling the large hall. The regular program was well interspersed with music by local talent, which added much to the enjoyment of the sessions.

The chief interest of exhibitors seemed to be apples, and the display of this fruit was well worth the trip to Clyde. Particularly fine were the exhibits of the Experiment Station, by Mr. W. W. Farnsworth, Mr. U. T. Cox, Mr. Isaac Freeman, Mr. M. E. Sweet and Mr. Woodard. There were also good exhibits of grapes, pears, potatoes, celery, pumpkins and flowers, chiefly carnations.

TUESDAY, 10:00 A. M.

Arrangements of exhibits and renewal of memberships.

TUESDAY AFTERNOON.

Reports of the members of the Ad Interim Committee.

Fruit Notes of the Season, by Prof. Green.

TUESDAY EVENING.

President's Address.

Moth Traps—Prof. V. H. Davis, Ohio State University.

Recent Investigations of the Codling Moth—Prof. P. L. Parrott, Entomologist of the Ohio Experiment Station.

Spraying for Codling Moth in Southern Ohio—Lowell Roudebush.

Grape Rot Conditions of Northern Ohio in 1901 and 1902—Prof. J. F. Hicks, Assistant Botanist of Ohio Experiment Station.

WEDNESDAY MORNING.

Roadside Planting—Isaac Freeman.

Report of Committee on Vegetable Pathology—Prof. A. D. Selby.

Report of Forestry Committee—Prof. W. R. Lazenby.

Peaches for Profit—Prof. L. R. Taft, of Michigan Agricultural College.

WEDNESDAY AFTERNOON.

Dietetic Value of Fruit—Prof. W. R. Lazenby.

Home Adornment—Mrs. V. A. Betts.

The Lawn and Some Features of Its Adornment—E. H. Cushman.

Home and Civic Improvement—National Cash Register Co.

THURSDAY MORNING.

Report of Nursery and Orchard Inspection.

Report of Librarian.

Report of Executive Committee.

Report of Secretary.

Report of Treasurer.

Election of Officers.

Unfinished Business.

Final Resolutions.

QUESTIONS.

The following questions were discussed as opportunity may present during the meeting:

1. Has the Dust Spray proven successful?—President Miller.

2. Are there any practical power sprayers now in operation?—Prof. Taft.

3. How may we secure better judging at the State Fair?—F. H. Ballou.

4. How far can we depend upon Leguminous fertilizers to keep up the fertility of our orchards?—Dr. W. I. Chamberlain.

5. What is the last and best experience regarding the cultivation of orchards?—E. G. Cox.

6. Will the more general building of electric roads benefit horticulturists by means of better shipping facilities?—E. M. Woodard.

7. What can the State Society do to encourage the preservation, improvement and extension of our forest areas or woodland?

8. What legislation is now needed to promote the best interests of horticulture in Ohio?

9. Is there any practical means yet devised for protecting orchards from spring frosts, or from severe rain storms during blooming?—Prof. Taft.

10. Is it desirable to keep bees in or near the garden or orchard to assist in pollination of the flowers?—Professor Lazenby.

11. Are Japanese Plums likely to supersede the European varieties?—H. S. Persing.

12. Is the winter forcing of vegetables likely to be overdone?—R. J. Tussing.

The officers elected for the ensuing year were:

President, Wm. Miller, Ottawa county.

Vice President, U. T. Cox, Lawrence county.

Secretary, E. M. Woodard, Lake county.

Treasurer, R. J. Tussing, Franklin county.

University News.

The total enrollment of the College of Agriculture and Domestic Science on November 4, was 190, as compared with 145 the same day last year. The total enrollment in the University is 1613.

The basement story of the new Veterinary Building is about completed and work is progressing as rapidly as weather will permit.

Several Cotswold and Shropshire lambs have been purchased by the Department of Animal Industry. Particulars regarding them will be published later.

Mr. C. L. Mooney, of the Bureau of Soils, visited the University the latter part of the month. Mr. Mooney has been stationed in Virginia during the summer.

E. D. Coberly, O. S. U. ex-'02, visited the University on his way to Pueblo, Colorado, where he is to be stationed for the winter with the U. S. Weather Bureau. Mr. Coberly has been with the Bureau at Richmond, Va., but has recently received a promotion, and his new location is a result.

Professors Lazenby and Davis attended the meeting of the State Horticultural Society at Clyde, December 16, 17 and 18.

Professor Plumb spent a few days in Indiana the latter part of the month looking after a new team for the University farm. He also visited Purdue University.

Professor Decker attended several farmers' institutes during the month and delivered addresses on dairying.

Dr. White delivered a lecture in Townshend Hall December 16 on the "Foot

and Mouth Disease of Cattle," which is causing so much anxiety among cattlemen. He spent several days in Boston recently investigating the outbreak of the disease.

General Agricultural News.

The work in agriculture at the Kansas College of Agriculture has been divided into three chairs—Agriculture, Animal Husbandry and Dairying. A. M. Ten Eyck, of the North Dakota College, has been elected Professor of Agriculture, D. H. Otis, of the Chair of Dairy Husbandry, was made Professor of Animal Husbandry, and E. H. Webster, assistant in Dairying, Professor of Dairying.

H. A. Huston, recently appointed director of the Indiana station to succeed Prof. C. S. Plumb, has resigned to accept the agency of the German Kali works. His headquarters will be at St. Louis and he will have to do mainly with educational work. He will assume his new duties about April 1.

Kenyon L. Butterfield, of the Michigan Agricultural College, has been invited to become president of the Rhode Island Agricultural College.

Oklahoma Agricultural College will this year institute a short course which will be designated as "a business course for farmers." It will include work in agriculture, horticulture and mechanic arts, and will extend from January 6 to February 27.

Dr. George C. Caldwell, Professor of Chemistry at Cornell University since 1868, and who gave the work in Agricultural Chemistry, has retired, in accordance with the recent regulations of the trustees, which permits professors to retire with a pension when they reach the age of seventy.

The United States Department of Agriculture has received through the Department of State, a notice that a general exposition having to do with hygienic milk supply will be held at Hamburg May 2-10, 1903. The exhibits will be divided into various departments and will include all phases of the work, such as milk production, veterinary control of cows, and legislation relating to dairy work, means of instruction, milk preparations, handling of milk, etc.

At the Iowa State College it has been decided to apportion the recent appropriation one-fifth mill, as follows: Two hundred and twenty-five thousand dollars will be invested in a new Administration Building, \$200,000 in a new Agricultural Building, \$50,000 in a Pavilion for Agronomy and Animal Husbandry and a fire proof addition 60x100 feet is to be added to the present Agricultural Building, the latter to be complete by August, 1903.

A new Agricultural Building was recently dedicated at the Oregon College costing over \$40,000. It is 85x125 feet, and is three and one-half stories high. It contains a live stock judging room, dairy laboratory, a large assembly hall, together with apartments for horticulture, entomology, bacteriology and various class rooms, offices, etc.

At the Pennsylvania College the foundation has been completed for a Chapel and General Assembly Hall to cost \$140,000, this being largely donated by Mr. and Mrs. Chas. M. Schwab. Plans are also being drawn for the new Carnegie Library, for which \$100,000 was donated to the College last year.

The work of the Agricultural Department at the Hampton Normal and Agri-

cultural Institute is being considerably broadened. The introduction recently of Agriculture into all the courses of the institution has increased the work of the Agricultural Department so that it has been necessary to employ two assistants for Prof. C. L. Goodrich. George Hosford (Cornell University) has been given the Horticultural work, and R. E. Eastman (Kansas Agricultural College, Cornell post-graduate,) has been put in charge of the Landscape Gardening. The latter is of considerable importance from the fact that the grounds are to be rearranged this year. The Nature Study Bureau of the Institute has begun the publication of leaflets for farmers, two series of which are published, one on Agriculture and one on Animal Industry.

A press bulletin from the University of Illinois announces the organization of young people's clubs in various counties of the state to co-operate during the coming year with the Experiment Station and College in various lines of experimental work. At present the young people are engaged testing seed corn and in growing corn or flowers in competition for premiums to be offered at the Institutes next winter.

The Seventh International Congress of Agriculture will be held at Rome, Italy, in the spring of 1903. The work will be divided into ten sections as follows: (1) Rural economy (all phases). (2) Agronomy; (3) Agricultural instruction (colleges and experiment stations); (4) Economy of farm animals and related industries; (5) Rural engineering; (6) Special cultures and related industries; (7) Vegetable pathology, destruction of parasites, protection of useful animals; (8) Forestry; (9) Water and pisciculture; (10) Wine growing and making.

It is proposed to use electric light signals by night and flags by day to warn fruit growers of the Santa Clara Valley, California, of approaching frosts during March and April. An electric tower 220 feet high located at San Jose can be seen throughout the greater part of the country.

The well known love of the Wellesley college girl for tempering higher education with the rustic idea, has found a new expression in her adoption of a course in up-to-date agriculture. Women will be trained in scientific gardening and green-house work, and a good dairy and poultry plant will be maintained for the benefit of the students. In addition to the spacious college grounds, the Hunnewell estate, it is said, will be at the service of the fair tillers of the soil.

There is no reason why women should not succeed at green-house work and poultry keeping; in fact, great numbers of them do. It would be far better for them to organize these departments than to enter the already crowded ranks of teachers. While this branch of study is somewhat of a novelty in American colleges for women, at one woman's college in England, successful graduates have been turned out for fifteen years.

Undoubtedly, many of these young women expect to come into possession of large estates, and while it is not presumed that they will actively participate in the ordinary farm operations they will nevertheless, be sufficiently prepared to manage the work to the best advantage. Success in farming today, depends upon the management and judgment of the overseer, and if their college training will qualify the women for this, we should not look upon the undertaking with disfavor.

Agricultural Chemicals and Fertilizers.

The ammoniate market is steady and firm. Continued inquiries from the South are being reported, but the business as yet has not developed very large proportions. Nitrates are inclined to be stiff, but quotations are generally unchanged. The demand for fish scrap and dried blood continues active, while the supply is not large.

AMMONIATES.

Nitrate of soda, spot, per 100 lbs.....	\$2 05	a
Nitrate of soda, futures, per 100 lbs..	1 95	a
Cottonseed meal, p. ton, c. i. f. N. Y.	27 00	a	28 00
Sulph. ammonia, spot.....	2 97½a		3 00
Sulph. ammonia, shipment.....	2 95	a	2 97½
Dried blood, New York, low grades..	2 45	a	2 47½
Dried blood, Western, high grade, fine ground	2 57½a		2 60
Fish scrap, at New York.....	2 55	a	10
Tankage, per unit.....	\$2 55a		2 60 a 10

PHOSPHATES.

Acid phosphate, per unit.....	55	a	60
Bone black, spot, per ton.....	16 00	a	17 00
Ground bone, per ton.....	21 00	a	23 50
S. C. phosphate rock, ground, per 2000 lbs.....	5 00	a	5 50
S. C. phosphate rock, undried, f. o. b. Ashley River, 2400 lbs.....	3 00	a	3 25
do do do dried..	3 25	a	3 50
Florida, high grade phosphate rock, f. o. b. Fernandina, per ton.....	6 50	a	7 00
Florida land pebble phosphate rock, f. o. b. Fernandina, per ton.....	4 00	a	4 50
Tennessee phosphate, f. o. b. Mt. Pleasant, domestic	3 25	a	3 50
do do do foreign..	3 75	a	4 00

POTASH.

Kainit, future shipment, per ton.....	9 05	a
Keiseret, future shipment, per ton....	7 35	a	7 50
Mur. potash, 80 p. c., future shipment	1 80	a
Double manure, salt (48a49 per cent. less than 2½ per cent. chlorine), shipment, per lb.....	1 00	a
Basis 48 p. ct.			
High grade manure salt (90a93 per cent. sulphate potash), shipment....	2 08	a
Basis 90 p. ct.			
Manue salt, in bulk, 20 per ct. per unit, O. P.....	62	a	64

The total number of officers and employes in the different grades of the Department of Agriculture has more than doubled during the last ten years and is at present 3,789.

